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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,107	06/08/2005	Changlong Ning	NL021254US	1511
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EXAMINER A. MINH D				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/538,107

Applicant(s)

NING, CHANGLONG

Examiner

MINH D. A

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date 6/28/08, 6/8/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This is a response to the Applicant's amendment submitted on 5/20/08. In virtue of this amendment, claims 1-10 are currently presented in the instant application and claims 11-20 are cancelled.

The indicated allowability of claims 1-10 is withdrawn in view of the newly discovered reference(s) to Ono et al (U.S Patent No : 6, 545,430) and Eastlund et al (U.S Patent No: 6, 652, 344). Rejection based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono et al (U.S Patent No: 6, 545, 430) in view of Eastlund et al (U.S Patent No: 6, 652, 344).

Regarding claim 1, Ono et al disclose in figure 3, a high-pressure mercury vapor discharge lamp (100) comprising a lamp vessel(arc tube (1) made of a transparent ceramic material(quartz glass), enclosing a discharge space (8) comprising an ionizable discharge medium(mercury and gas) and at least two electrodes(2 and 3) having electrode tips(22 and 32) that are spaced apart at a mutual distance d(De), and electrical feed-through elements(6 and 7) which

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extend from the at least two electrodes to an exterior of the lamp(1), (col.4, lines 28-54) , wherein the distance $d(De)$ between the electrode tips is less than 1.0 mm (Col.4, lines 40-42).

Ono et al do not disclose that, a mercury density in the lamp vessel is higher than 0.3 mg/mm^3 .

Eastlund et al disclose the mercury density is between 10 mg/cm^3 and 600 mg/cm^3 . Col. 11, lines 21-23, note that, 10 mg/cm^3 and $600 \text{ mg/cm}^3 = 0.01 \text{ mg/mm}^3$ and 0.6 mg/mm^3 .

Therefore, it would have been obvious to one having ordinary skill in the art to employ the mercury density disclosed in the high intensity discharge lamp of Eastlund in the high pressure discharge lamp of Ono to achieve the claimed invention. As disclosed in the high intensity discharge lamp of Eastlund et al , the motivation for the combination would be to obtain the lamp life and efficacy.

Regarding claim 2, Ono et al disclose wherein the distance (De) between the electrode tips ranges from 0.3 to 0.8 mm. Col.4, lines 40-41.

Regarding claim 3, Ono et al disclose wherein the distance between the electrode tips ranges from 0.3 to 0.6 mm. Col.4, lines 40-41.

Regarding claim 4, Ono et al and Eastlund et al obviously disclose wherein the mercury density is between 10 mg/cm^3 and 600 mg/cm^3 . (See col. 11, lines 21-23 of Eastlund et al) corresponding to the ranges from 0.3 to 0.8 mg/mm^3 .

Regarding claim 5, Ono et al and Eastlund obviously disclose wherein the mercury density in the lamp vessel is between 10 mg/cm^3 and 600 mg/cm^3 . (See

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col. 11, lines 21-23 of Eastlund et al) corresponding to the range from 0.4 to 0.7 mg/mm³.

Regarding claim 10, Ono et al and Eastlund et al obviously disclose a lighting apparatus, comprising a main body and at least the lamp of claim 1.

3. Claims 6-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Ono et al (U.S Patent No: 6, 545, 430) in view of Eastlund et al (U.S Patent No: 6, 652, 344) as applied to claim 1 above, and further in view of Honda et al (U.S Patent No: 6, 307, 321).

Regarding claims 6-7, Ono et al and Eastlund et al obviously disclose all of the claimed limitations, except for a bulging section communicating with at least two feed-through channels having an inner diameter smaller than the bulging section and wherein the bulging section is substantially cylindrical over the distance d and has an internal cross-sectional diameter D_i ranging from 1.5 to 4.5 mm and a length L ranging from 4 to 8 mm.

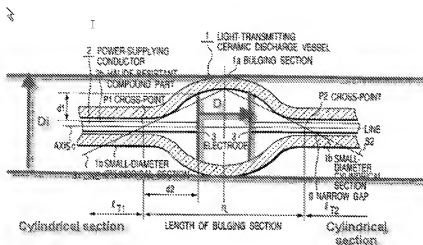


FIG. 2

Honda et al disclose, in figure 2 above, wherein the lamp vessel comprises a bulging section (1a) communicating with at least two feed-through channels (see figure 2 above, cylindrical section) having an inner diameter(1b) smaller than the bulging section(1a) and wherein the bulging section(1a) is substantially cylindrical over the distance d (see label in figure 2) and has an internal cross-sectional diameter Di(see label in figure 2) ranging from 1.5 to 4.5 mm (see table 1, col.10, lines 1-10) and a length L ranging from 4 to 8 mm (see col.9, lines 37-40).

It would have been obvious to one having ordinary skill in the art to employ the wherein the lamp vessel comprises a bulging section (1a) communicating with at least two feed-through channels (figure 2, cylindrical section) having an inner diameter(1b) smaller than the bulging section(1a) and wherein the bulging section being substantially cylindrical over the distance d and has an internal cross-sectional diameter Di ranging from 1.5 to 4.5 mm and a

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length L ranging from 4 to 8 mm disclosed in Reference of Honda et al in the discharge device of to achieve the claimed invention. As disclosed in Reference of Honda et al, the motivation for the combination would be to improve the lamp life and high efficiency for the high pressure discharge lamp and lighting apparatus.

Regarding claim 9, Ono et al and Eastlund et al obviously disclose all of the claimed limitations except for wherein the lamp vessel is made of a transparent ceramic material chosen from a group consisting of sub-micro polycrystalline aluminum (PCA), yttrium aluminum garnet (YAG), Y2O3, MgAl2O4, and aluminum nitride (AlN).

Honda et al disclose, in figure 2, wherein the lamp vessel is made of a transparent ceramic material chosen from a group consisting of sub-micro polycrystalline aluminum (PCA), yttrium aluminum garnet (YAG), Y2O3, MgAl2O4, and aluminum nitride (AlN). Col.2, lines 45-56.

It would have been obvious to one having ordinary skill in the art to employ the transparent ceramic material chosen from a group consisting of sub-micro polycrystalline aluminum (PCA), yttrium aluminum garnet (YAG), Y2O3, MgAl2O4, and aluminum nitride (AlN). Col.2, lines 45-56 disclosed in Reference of Honda et al in the discharge device of Ono et al and Eastlund et al to achieve the claimed invention. As disclosed in Reference of Honda et al, the motivation for the combination would be to improve the long lifetime for discharge lamp and an optimum performance.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Ono et al (U.S Patent No: 6, 545, 430) and Eastlund et al (U.S Patent No: 6, 652, 344) in view of Honda et al (U.S Patent No: 6, 307, 321) as applied to claim 6 above, and further in view of Genz et al (U.S Patent No. 6, 054, 811).

Regarding claim 8, the combination of Ono et al and Eastlund et al and Honda a obviously disclose all of claimed subject matters, as expressly recited in claims 1 and 6, except for wherein a wall load inside of the lamp vessel during operation ranges from 40 to 150 W/cm².

Genz et al disclose, in figure 1, wherein a wall load inside of the lamp vessel during operation ranges from 40 to 150 W/cm². Col.6, lines 46-47.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the wall load inside of the lamp vessel during operation ranges from 40 to 150 W/cm² disclosed in Reference of Genz in the discharge device of the combination Ono et al and Eastlund et al and Honda et al to achieve the claimed invention. As disclosed in Reference of Genz et al, the motivation for the combination would be to obtain the high wattage for operation of discharge lamp.

Citation of relevant prior art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art Ikeuchi et al (U.S. Patent No. 5,905, 341) discloses a high pressure mercury ultraviolet lamp.

Prior art Van Vleet et al. (U.S. Patent No. 5,973,453) discloses a ceramic metal halide discharge lamp.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Dieu A whose telephone number is (571) 272-1817. The examiner can normally be reached on M-F (5:30 AM-2: 45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W Owens can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner

Minh A

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8/6/08

/Douglas W Owens/

Supervisory Patent Examiner, Art Unit 2821